Dairy value chain vision and strategy for Ethiopia

ETHIOPIA LIVESTOCK MASTER PLAN BACKGROUND PAPER

Dairy value chain vision and strategy for Ethiopia

Ministry of Agriculture
International Livestock Research Institute

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Preface

In 2012, the Ministry of Agriculture commissioned ILRI to develop several background papers to inform the development of a livestock master plan and roadmap for Ethiopia. The papers were developed by teams of people brought together for this task.

The production of the background papers was supported by the Improving the Productivity and Market Success of Ethiopian farmers project (IPMS) funded by the Canadian International Development Agency (CIDA). The eight papers are listed below and are all available at https://cgspace.cgiar.org/handle/10568/51565.

- Animal health strategy and vision for Ethiopia.
- Animal production vision and strateghy for Ethiopia.
- Apiculture value chain vision and strategy for Ethiopia.
- Dairy value chain vision and strategy for Ethiopia
- Livestock extension vision and strategy for Ethiopia.
- Hides, skins and leather value chain vision and strategy for Ethiopia.
- Live animals and meat value chain vision and strategy for Ethiopia.
- Review of past policies and strategies for livestock in Ethiopia.

Background: The dairy subsector

In Ethiopia, rapidly increasing human population to over 91 million (CIA World Factbook, July 2012), an accelerated rate of urbanization at 4.3% per year, increasing per capita income in urban areas, combined with growth in direct investment in dairy processing by both expatriates and Ethiopians can be expected to increase the demand and supply of milk and milk products over the coming years. The urban population, with relatively high purchasing power represents the main market for fresh milk and milk products. As a result, commercial and market-oriented smallholder peri-urban dairy production systems have tremendous potential for development.

The main dairy animals produced are cattle, camels and goats depending on the agro-ecology. Of the 2010/11 estimated annual milk production of 4.05 million tonnes (MoA 2012), 83% (3.36 million tonnes) is produced by cows. Camels and goats contribute the other 17% to the total milk production. Regarding cows' milk, 97% (3.26 million tonnes) comes from indigenous breeds while the contribution of the exotic pure breed and crossbred animals is not more than 3% (101 thousand tonnes) per annum.

The highland mixed crop–livestock production system incorporates smallholders, urban and peri-urban and large-scale dairy farming systems. Milk production in the highland areas exclusively focuses on producing market milk from pure-bred cows and long shelf life traditional products such as butter and ayib from local breeds. This is mainly done by linking smallholders to terminal markets and encouraging medium and large commercial farms, by strengthening the extension system for technical support and by facilitating access to credit.

As compared to the highlands, the pastoral areas are endowed with diversified dairy animals by being home to cows, camels and goats. Camel milk is a staple food of pastoral communities and is considered a whole food; pastoralists can survive on camel milk alone for up to six months. Compared to cow milk, camel milk is rich in vitamins, minerals, proteins, and immunoglobulin; it is lower in fat and higher in lactose, potassium, iron, and vitamin C. On top of their own consumption, pastoralists sell camel milk through middlemen in highland towns such as Addis Ababa and they export it to neighbouring countries. Retail prices in Addis Ababa reach 24 birr per litre.

Because of the low milk production, the average per capita consumption of milk in Ethiopia is estimated to be as low as 19.2 kg, compared to 27.5 kg for Africa and 75 kg worldwide (MoA 2012). Except for children, during festivals and special occasions, milk products do not form part of the daily regular Ethiopian diet. Adults do not often drink milk except with coffee. Especially in the highland areas, followers of the Orthodox Church refrain from consuming livestock products on Wednesdays and Fridays and during fasting periods which in total account for about two-thirds of a year. Consumer preferences for traditional products, as well as high processing and packing costs hamper the development of modern dairy industry.

Current situation

Domestic and export end market analysis

The major dairy products in Ethiopia include traditional and industrially produced products. The traditional products are: sour milk, 'irgo' (fermented milk), cooking butter and 'ayib' (cottage cheese). Industrial products include pasteurized milk, skimmed milk, yoghurt, fermented milk, table and cooking butter, cheese, cream and ice cream.

The major marketable dairy product is butter which has a relatively longer shelf life as compared to fresh whole milk. Available information indicates that the country exports milk and milk products, particularly camel milk, from pastoral areas to neighbouring countries. However, data of the Ethiopian Revenue and Customs Authority indicate that the country is a net importer of milk and its derivatives. Between 2006 to 2010, the country spent over 678.75 million birr to import various products. Expenditure on powdered milk accounted for 79.6%, followed by cream, 12.9% and cheese 4.3%.

Policy

Livestock development is guided by the broad policies of the government. These include the Agriculture Development Led Industrialization (ADLI), Poverty Reduction Strategy Program (PRSP), Food Security Strategy (FSS), Rural Development Policy and Strategies (RDPS), Capacity Building Strategy and Program (CBSP), Agricultural Marketing Strategies (AMS), foreign affairs and security policy and strategy, the export strategy, and the draft livestock breeding policy.

There is no overarching policy for livestock development on which plans, strategies and projects can be based. Policy guidance is also lacking for specific components of livestock development, including disease control, the veterinary laboratory service, privatization of veterinary service delivery, and so on (GRM International 2007).

Marketing

In Ethiopia, fresh milk is channelled through informal and formal marketing subsystems (Debrah et al. 1992). The informal market involves direct delivery of fresh milk by producers to consumers in the immediate neighbourhood and sales to itinerant traders or individuals in nearby areas. The formal subsystem involves organized collection networks, bulk cooling, transport, processing and distribution. Dairy plants are at the core of the formal marketing subsystem.

Producers' knowledge of alternative sales outlets and of prices they offer will, generally, enhance their bargaining position and improve their chances of getting the highest prices for their products. Producers will also have the flexibility to shift between outlets to obtain the best prices. The factors affecting the selection of milk sales outlets are proximity, price, reliability and lack of alternative choices (Belachew et al. 1994). About 48% of urban producers give consideration to proximity and better price while selecting sales outlets. The majority of the urban producers (71.2%) sell directly to consumers. Contrary to this, peri-urban producers (62%) mainly supply to processors. The

major actors on the milk marketing value chain are producers, vendors, processors, wholesalers, retailers, catering enterprises and consumers. Recently, vendors have become collectors of raw milk from farmers and deliver to processors at factory gates. Under this operation, adulteration of milk and quality deterioration is becoming an issue.

Production and technology

In most cases, livestock husbandry is not market-oriented. Livestock tend to be kept for home consumption of milk and meat, and as a store of wealth and insurance against climatic risks. An assessment (Ketema and Tsehay, 1995) indicated four main dairy production systems:

- Rural highland smallholder dairy farming that includes the traditional subsistence system with indigenous breeds producing milk mainly for home consumption, and a market-oriented system with a few crossbreed animals producing milk mainly for the market.

- Urban and peri-urban small-scale dairy farming comprising small and medium sized dairy farms that own crossbreed dairy cows in and around major towns. Milk is produced for sale as a source of income.

- Large-scale dairy farming: This system is a specialized market-oriented dairy operation practised by a very few private commercial farms with pure and crossbreed cattle.

- Lowland pastoralist dairy farming: Livestock are the backbone of pastoralist livelihoods, providing all of the consumable and saleable outputs, and insurance against adversity.

Input supply and services

Urban and peri-urban small- and large-scale dairy farmers mainly depend on purchased inputs such as feed, veterinary drugs, semen (AI services) and limited animal health services through private veterinary practitioners. Rural highland smallholder dairy farmers and lowland pastoralists depend on their land plots and communal grazing fields to feed their animals. Breeding is through natural mating. Veterinary services are provided by the government extension system. To a limited extent, veterinary drugs are obtained from rural vendors.

Research

At the federal level, the Ethiopian Institute of Agricultural Research and in the regions, the Regional Agricultural Research Institutes conduct studies and generate technologies. Except on production aspects, studies on dairy products are negligible.

Vision and targets

Vision

In general, the dairy industry development vision is part of the national agricultural development vision. However, to be focused, it is envisaged that Ethiopia will become self-sufficient in milk and milk products with a per capita consumption reaching the world average by 2025.

Targets

It is projected that by 2025, development interventions will impact on the growth of dairy cattle and milk production and consumption from the GTP base year of 2010/11 as indicated below:

- The number of improved dairy cattle breeds will grow from 10.3% to 42.3%.
- The number of improved milking cows will increase from 537,553 to 1,570,078.
- Increasing average daily milk production per lactation for local breeds from 1.9 litres to 4 litres/day, and increasing lactation from 6 to 8 months.
- Increasing average daily milk production per lactation for crossbreds from 1.5 litres to 8 litres/day.
- National milk produced from milk animals will grow from 4.05 million tonnes to 29.68 million tonnes.
- Per capita milk consumption will reach 75 litres/person per annum from that of 19.2 kg.
- Industrially processed milk will grow from less than 2000 litres to 1 million litres per day.

Challenges and strategies

The major technical and institutional challenges that hamper the development of dairy industry in the country are identified, and for each challenge, strategic intervention measures are recommended.

Challenge 1: Seasonality of milk and milk products consumption behaviour and patterns

- Strategic interventions:
    - Increase milk consumption by creating awareness on the nutritional value of milk and milk products.
    - Promote school milk feeding schemes, especially at kindergarten and primary school levels.

Challenge 2: Underdeveloped and predominantly unorganized marketing systems

- Strategic interventions:
    - Organize and strengthen smallholder milk producers into marketing groups, dairy cooperatives and subsequently into dairy unions to increase milk production, marketing and commercializing the subsistent type of smallholder milk production system.
    - Create market linkages between pastoral marketing groups and cooperatives and the highland areas and the neighbouring export markets.
    - Implement a functional payment system based on quality.
    - Support processors through incentive mechanisms to invest in organized milk collection, bulking, transporting, value addition and distributing quality milk and milk products.

Challenge 3: Absence of focused interventions based on development areas/corridors

- Strategic interventions:

- Delineate and map milk shed areas based on availability of dairy breeds and development corridors, targeted and potential development areas, taking major regional cities as focal end markets for milk and milk products.
- Support and strengthen peri-urban dairy farms by availing land at reasonable rates and other inputs and services.
- Through availing land, comprehensive incentive mechanisms, support and encourage vertically integrated medium- to large-scale commercial farms and processing industries which can stimulate the commercialization of smallholders through outgrower schemes.
- Popularize and support cross breeding of 50% Jersey breed (high in milk fat) with selected local breeds using natural mating for increasing milk and butter production in the remotest rural areas.
- Encourage, train and support farmers cooperatives and marketing groups in remote rural areas to establish butter churning and other dairy products processing units, by availing improved technologies.

Challenge 4: Inadequate production inputs availability and extensions service delivery

- Strategic interventions:
  - Encourage and support an efficient and operational public and private dairy extension and advisory service to provide dairy farm inputs, technology transfer and producer–research–private sector linkages.
  - Prepar manuals for feed production, harvesting, preserving; and cost-efficient ration formulation in regional languages as handbooks for DAs to train farmers for feeding and managing dairy animals.
  - Encourag and support private veterinary practitioners to provide animal health clinical services.
  - Train, equip and capacitat. community animal health workers to delivering animal health services for pastoral communities.

Challenge 5: Low genetic potential and productivity of indigenous breeds

- Strategic interventions:
  - Develop appropriate breeding strategies (crossbreeding) using AI and bull services to ensure adequate milk production and supply.
  - Encourage and promote commercial heifer multiplication ranches and linking ranches to research institutions and dairy farmers.
  - Train selected farmers as farmer artificial inseminators to reduce the critical shortage of AI technicians.
  - Test and scale up technologies to speed up genetic progress such as Multiple Ovulation and Embryo Transfer (MOET).

- Improve the productivity of pastoral rangeland and vegetation by controlling bush encroachment and introducing fodder banks to enhance the productivity of dairy animals.

- Improve the productivity of camels and goats through selection and better management.

Challenge 6: Limited use of improved technologies

- Strategic interventions:

  - Encourage processors with incentives to make powdered milk and long shelf life milk like UHT, to bridge the gaps between lean seasons.

  - Introduce and promote appropriate technologies for the preservation, processing and marketing of camel and goat milk and milk products.

  - Introduce and avail solar energy generating technologies and encourage farmer groups to use it for processing and preserving dairy products.

  - Encourage and avail ghee making and packing technologies.

BULLETPopularize among the producers conversion of milk into soft cheese ‘ayib’ and fermented milk ‘irgo’ for home consumption and marketing.

Challenge 7: Absence of strong public private institutional set up

- Strategic interventions:

  - Strengthen, capacitate and equip EMDTI to build the capacity of private operators and facilitate investment that stimulate dairy business development and improve business and financial management practices.

  - Establish and capacitate vibrant institutions to participate in implementing development strategies, guiding and supporting the development of the dairy industry in the country.

  - Establish, support and capacitate public–private institutions like the Dairy Development Board to support government development initiatives and that of the private sector.

  - Encourag and support the creation and proper functioning of dairy products processors and service providers.

Challenge 8: Lack of quality enhancement measures

- Strategic interventions:

  - Capacitate regulatory organs for licensing dairy value chain actors, setting quality standards from production to consumption and enforcement.

- Establish central laboratories to determine the qualities of milk supplied by various operators to protect consumer health.

Challenge 9: Inadequate credit facilities because of collateral requirements

- Strategic interventions:
  - Encourage insurance companies to introduce and practice livestock insurance.
  - Encourage insurance companies to introduce index based livestock insurance in pastoral areas.
  - Facilitate credit facilities through banks and micro finance and credit institutions to improve liquidity of operators along the industry value chain.

References

ATA. 2012. Agricultural cooperatives sector development strategy 2012–2016. Addis Ababa, Ethiopia: ATA.

Berhanu, A. and Debrah, S. 1991. Dairy marketing in Ethiopia. ILCA Research Report No. 19. Addis Ababa, Ethiopia: ILCA.

Debrah, S. 1992. Dairy marketing by intra-urban, peri-urban and rural dairy producers near Addis Ababa, Ethiopia. In: Proceedings of a symposium on dairy marketing in sub-Saharan Africa, 26–30 November 1990. Addis Ababa, Ethiopia: ILCA.

GRM International BV. 2007. Livestock development master plan study: Phase I Report—Data collection and analysis. Volume I—Dairy.

GRM International BV. 2007. Livestock development master plan study: Phase I Report—Data collection and analysis. Volume V—Policy and Institutions.

Hurrissa, B. 1997. Milk sales outlet options in Addis and the surrounding peri-urban areas. In: Proceedings of the fifth national conference of the Ethiopian Society of Animal Production (ESAP), 15–17 May 1997. Addis Ababa, Ethiopia: ESAP. pp. 72–81.

Hurrissa, B. et al. 1994. Milk and milk products marketing survey in Addis Ababa and the surrounding regions.

Ketema, H. and Tsehay, R. 1995. Dairy production systems in Ethiopia. In: Proceedings of a workshop on strategies for market orientation of small-scale milk producers and their organizations, 20–24 March 1995, Morogoro, Tanzania. Addis Ababa, Ethiopia: ILCA.

MOA. 2010. Ethiopia's agricultural sector policy and investment framework (PIF) 2010–2020. Draft final report. Addis Ababa, Ethiopia: MOA.

MOA. 2012. Livestock growth strategy and action. Draft discussion paper. Addis Ababa, Ethiopia: MOA. (Amharic version).

Negassa A., Rashid, S. and Gebremedhin, B. 2011. Livestock production and marketing. Ethiopia Strategy Support Program II, ESSP II Working Paper 26 Addis Ababa, Ethiopia: ESSP.

Revenue and Customs Authority. 2012. Unpublished data.

Staal, S., Delgado, C. and Nicholsin, C. 1996. Smallholder dairying under transaction costs in East Africa. MSSD Discussion Paper No. 9. Nairobi, Kenya: ILRI.

Tegegne, A. and Alemu, G. 1997. Prospects for peri-urban dairy development in Ethiopia. In: Proceedings of the fifth national conference of the Ethiopian Society of Animal Production, 15–17 May 1997, Addis Ababa, Ethiopia. Addis Ababa, Ethiopia: ESAP. pp. 28–39.

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The Improving the Productivity and Market Success of Ethiopian Farmers (IPMS) project, funded by the Canadian International Development Agency (CIDA), was a research for development project that worked with the Ethiopian Ministry of Agriculture (MoA) to transform the smallholder subsistence farming system to a more commercial-oriented agricultural system. To contribute to this transformation process, the project used a value chain systems approach, focusing on the MoA's extension system, value chain actors, service and input suppliers. https://ipmsethiopia.wordpress.com/

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